

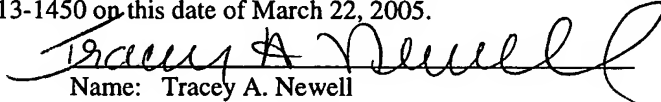
IFW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Ichiro HAZEYAMA, et al. :  
: :  
Serial No.: 10/700,438 : Art Unit: 1725  
: :  
Filed: November 4, 2003 : Examiner: Edmondson, Lynne Renee  
: :  
For: **TRANSFER APPARATUS FOR** : Atty. Docket: KIM-01802  
: **ARRAYING SMALL** :  
: **CONDUCTIVE BUMPS ON** :  
: **SUBSTRATE AND/OR CHIP** :

**Certificate of Mailing**

I hereby certify that the foregoing documents are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Mail Stop Amendment, the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this date of March 22, 2005.

  
Name: Tracey A. Newell

**INFORMATION DISCLOSURE STATEMENT**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO-1449 is a listing of documents known to Applicants and/or their attorney in compliance with the requirements of 37 C.F.R. 1.56. Copies of the documents are also being submitted.

The references submitted herewith were cited by the Japanese Patent Office in a February 2, 2005 Office Action (copy enclosed) for a counterpart application. Since this IDS is being filed within three months of that date and prior to either a Notice of Allowance or a Final Office Action for this case, then, under 37 C.F.R. 1.97, no fee is due.

In compliance with the requirements of 37 C.F.R. §1.98(a)(3), as a concise statement of relevance, as it is presently understood by the individual designated in 35 U.S.C. §1.56(c) most knowledgeable about the content of the information, the undersigned attorney of record submits

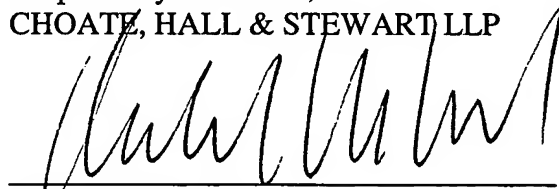
a translation of portions of an official action by a foreign examiner in which the references were cited. A copy of the official action is enclosed. The relevance to the pending U.S. patent application is that the references were cited in a foreign patent application corresponding to the above-captioned U.S. patent application. However, no independent analysis of the references, the accuracy of the statement of the foreign examiner or the claims of the foreign application under the laws of that country or the United States relative to the subject matter claimed in the present application has been made; the present understanding of the contents thereof by the undersigned being based on the translation of the foreign examiner's comments submitted herewith.

The Examiner is respectfully requested to initial the space adjacent to each document on the PTO-1449 form and return a copy of the PTO-1449 form to confirm that these documents have been considered by the Examiner and made of record in this application.

Although we believe that we have appropriately provided for any fees due in connection with this submission, the Commissioner is authorized to credit any overpayment or charge any deficiencies to/from our **Deposit Account No. 031721**. Two originally-executed copies of this form are being submitted.

Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at (617) 248-4038.

Respectfully submitted,  
CHOATE, HALL & STEWART LLP

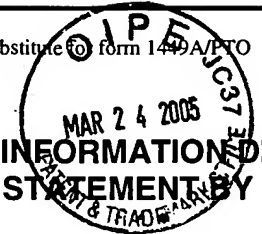


Donald W. Muirhead  
Registration No. 33,978

March 22, 2005

Date

Patent Group  
Choate, Hall & Stewart LLP  
Exchange Place  
53 State Street  
Boston, Massachusetts 02109

|   |                        |    |   |                          |                  |
|---|------------------------|----|---|--------------------------|------------------|
| Substitute Form 1449A/PTO<br><br>(Use as many sheets as necessary) |                        |    |   | <b>Complete if Known</b> |                  |
|   |                        |    |   | Application Number       | 10/700,438       |
|   |                        |    |   | Filing Date              | November 4, 2003 |
|   |                        |    |   | First Named Inventor     | Ichiro HAZEYAMA  |
|   |                        |    |   | Art Unit                 | 1725             |
| Examiner Name   | EDMONDSON, Lynne Renee |    |   |                          |                  |
| Sheet   | 1                      | of | 1 | Attorney Docket Number   | KIM-01802        |

| U.S. PATENT DOCUMENTS |                       |  |                                |  |   |
|-----------------------|-----------------------|--|--------------------------------|--|---|
| Examiner Initials*    | Cite No. <sup>1</sup> | Document Number                          | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |
|                       |                       | Number-Kind Code <sup>2</sup> (if known) |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |
|                       |                       | US-                                      |                                |  |   |

| FOREIGN PATENT DOCUMENTS |                       |   |                                |  |   |                          |
|--------------------------|-----------------------|---|--------------------------------|--|---|--------------------------|
| Examiner Initials*       | Cite No. <sup>1</sup> | Foreign Patent Document   | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear | T <sup>6</sup>           |
|                          |                       | Country Code <sup>3</sup> -Number <sup>4</sup> -<br>Kind Code <sup>5</sup> (if known) |                                |  |   |                          |
|                          |                       | JP 11-289155  | 10-19-1999                     | Japan  |   | <input type="checkbox"/> |
|                          |                       | JP 11-345903  | 12-14-1999                     | Japan  |   | <input type="checkbox"/> |
|                          |                       | JP 11-317415  | 11-16-1999                     | Japan  |   |                          |
|                          |                       | JP 8-18209  | 01-19-1996                     | Japan  |   | <input type="checkbox"/> |
|                          |                       | JP 8-8523   | 01-12-1996                     | Japan  |   | <input type="checkbox"/> |
|                          |                       | JP 11-240612  | 09-07-1999                     | Japan  |   | <input type="checkbox"/> |
|                          |                       | JP 2000-223516  | 08-11-2000                     | Japan  |   |                          |

|                    |  |                 |  |
|--------------------|--|-----------------|--|
| Examiner Signature |  | Date Considered |  |
|--------------------|--|-----------------|--|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

“suction holes 4,” with these [members] being subsequently bonded. If the use of diffusion bonding for bonding these [members] can be selected depending on the materials, etc., of these, then the diffusion bonding itself is a universally known technique, so that no particular difficulty is found in this point, either.

*[Text omitted – Translator.]*

Table of Cited References, etc.

Cited Publication 1: Japanese Patent Application Kokai No. H11-289155  
Cited Publication 2: Japanese Patent Application Kokai No. H11-345903  
Cited Publication 3: Japanese Patent Application Kokai No. H11-317415  
Cited Publication 4: Japanese Patent Application Kokai No. H08-018209  
Cited Publication 5: Japanese Patent Application Kokai No. H08-008523  
Cited Publication 6: Japanese Patent Application Kokai No. H11-240612

*[Text omitted – Translator.]*

[Record of Results of Survey of Prior Art References]

- Field surveyed:

IPC 7<sup>th</sup> Edition H01L21/60

- Prior Art References:

Japanese Patent Application Kokai No. 2000-223516

- This record of the results of a survey of prior art references does not constitute any reason for rejection.

See Cited Publication 1, especially Figure 4 and paragraphs [0048] and [0049].

In the invention described in these portions, there is no clear indication of a stand on which the "alignment jig 2" is placed, and the "mounting head 5" is not designed so that the portion where the "suction-chucking parts 50" are formed and the other portion can be separated. However, the "alignment jig 2" is placed somewhere, and when the working characteristics of the "suction-chucking parts 50" are taken into account, it is clear that it is more convenient to prepare this portion and the other portion separately and to subsequently integrate these portions for use.

*[Text omitted – Translator.]*

In Cited Publication 1, especially in Figure 4, the "suction holes 210" pass through the bottom portion of the "aligning recessed parts 21."

*[Text omitted – Translator.]*

In Cited Publication 2, especially in Figure 2 and paragraph [0013], the depth (h) of the "arrangement holes 22a" in the "arrangement jig 22" is such that  $d \leq h < 2d$  in relation to the size of the "microscopic balls B" (diameter d). This overlaps with the relationship  $0.5d \leq h \leq 1.1d$  of the "depth of the alignment holes" (h) and the "diameter of the balls" (d) in the invention of this claim.

*[Text omitted – Translator.]*

In Cited Publication 1, especially in Figure 4, from the relationship in terms of the size and position between the "solder balls 65" and the spaces formed by the "suction-chucking parts 50" and "aligning recessed parts 21," these spaces correspond to the "ball relief holes for preventing interference with the balls" in the invention of this claim.

*[Text omitted – Translator.]*

See Cited Publication 3, especially Figures 2 and 3 and paragraphs [0019] and [0024] through [0026]. These portions describe a "microscopic ball arranging substrate" [which is formed by] bonding a "base board 2" that has "through-holes 2" for suction-chucking the "microscopic balls B" and a "tight-bonding metal layer 3" and a "surface treatment layer 4" that have tapered "precision holes 5."

*[Text omitted – Translator.]*

It is indicated in Cited Publication 3, especially in Figure 5, that the "precision holes 5" constitute "curved surfaces" that include the "surface treatment layer 4" created by plating.

*[Text omitted – Translator.]*

It is indicated in Cited Publication 4, especially in Figure 2 and paragraph [0014], that the "plate 4A" that holds "solder balls 10" by suction can be formed by "fluororesin."

*[Text omitted – Translator.]*

It is indicated in Cited Publication 5, especially in Figure 2, that the "alignment plate 15" that has received "solder balls 4" is vibrated by "vibration generating means 16." Because a vibration generating means is commonly a piezoelectric element, it can be said that a piezoelectric element can be used in the invention described in Cited Publication 5 as well.

*[Text omitted – Translator.]*

It is indicated in Cited Publication 5, especially in Figure 1, that the "solder balls 4" accommodated in the "alignment plate 12" are observed by the "camera 14b." No particular difficulty is found in the selection of regions having no abnormality in the arrangement of the "solder balls 4."

*[Text omitted – Translator.]*

See Cited Publication 6, especially Figure 1 and paragraphs [0008] through [0011].

The invention described in the above-mentioned cited publication substantially corresponds to this invention.

*[Text omitted – Translator.]*

In the invention described in Cited Publication 6, especially in Figure 1, the "alignment board 62" has "suction-chucking holes 3" and "suction holes 4" that are connected to each other and that have different diameters with respect to each other. When the working of these holes is considered, it is self-evident that it is easier [to adopt] a manufacturing process in which holes are formed separately in a member for having the "suction-chucking holes 3" and in a member for having the